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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,378	12/12/2001	Tracy L. Fulghum	4015-1740	2541
24112	7590	03/09/2006	EXAMINER	
COATS & BENNETT, PLLC			RAMAKRISHNAIAH, MELUR	
P O BOX 5			ART UNIT	PAPER NUMBER
RALEIGH, NC 27602			2643	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,378

Applicant(s)

FULGHUM ET AL.

Examiner

Melur Ramakrishnaiah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-27 is/are allowed.
- 6) ☒ Claim(s) 1,9,11,28,32,33 and 35 is/are rejected.
- 7) ☒ Claim(s) 2-8,10,12-17,29-31,34,36 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 28, 32-33, and 35, are rejected under 35 U.S.C 102(b) as being anticipated by Citta (US PAT: 5,162,900).

Regarding claim 1, Citta discloses an apparatus to filter a received signal, the apparatus comprising: at least one delay element (35, fig. 2) to generate a delayed signal by delaying the received signal by desired delay time, and a combiner (31, fig. 2) to generate a filtered signal by combining the received signal (30, fig. 2) with the delayed signal, the delay time of the at least one delay element configured to position filter null to substantially at the frequency of an expected interfering signal (figs. 1-2, col. 5 lines 52-68, col. 6 line 1, lines 22-40).

Regarding claim 28, Citta discloses a method of filtering relatively narrowband interfering signal from a wideband received signal, the method comprising: generating a delayed signal by delaying the received signal by a delay time calculated to produce a delay-and-add filter null at an expected frequency band of the interfering signal, and filtering the received signal by combining the received signal with the delayed signal to attenuate the interfering signal (figs. 1-2, col. 5 lines 52-68, col. 6 line 1, lines 22-40).

Regarding claims 32-33, 35, Citta further teaches the following: filtering the received signal comprises selectively filtering the received signal by selectively

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combining the received signal with the delayed signal, selectively filtering the received signal based on at least one characteristic of the received signal, selectively filtering the received signal on determining whether filtering reduces interference in the received signal (col. 6 lines 22-52).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta in view of Baugh (US PAT: 5,774,505).

Regarding claim 11, Citta discloses a delay-and-add filter to filter narrowband interference from a relatively wideband received signal, the filter comprising: a delay element 35, fig. 2) to produce a delayed signal at an output by delaying a received signal applied to an input, the delay element having a time delay calculated to position a filter null at a desired frequency corresponding to the narrowband interference, and a combining element (31, fig. 2) to generate a filtered signal by combining the received signal and the delayed signal output from the delay element (figs. 1-2, col. 5 lines 52-68, col. 6 line 1, lines 22-40).

Citta differs from claims 9, 11 in that he does not teach the following: delay element comprises a digital delay element.

However, Baugh discloses intersymbol interference cancellation with reduced complexity which teaches the following: delay element (64, fig. 2) comprises a digital delay element (col. 5 lines 50-54).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made modify Citta's system to provide for the following: delay element comprises a digital delay element as this arrangement would facilitate providing delay by another well known means as shown by Baugh.

5. Claims 2-8, 10, 12-17, 29-31, 34, 36, 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 18-27 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (703) 305-1461. The examiner can normally be reached on M-F 6:30-4:00; every other F Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703)305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melur Ramakrishnaiah
Primary Examiner
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